UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

**To:** Marietta Echeverria, Acting Director
Registration Division

**FROM:** Eric W. Bohnenblust, Chief
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**SUBJECT:** **Section 18 -Specific Exemption** for Use of Thiamethoxam on Rice to Control Rice Stink Bug in Mississippi (EE# 22MS03)

Mississippi submitted an emergency exemption request for the use of Endigo ZC Insecticide (containing lambda-cyhalothrin an Thiamethoxam) in rice. Mississippi is requesting the use on a maximum of 50,000 acres of rice fields in the following counties: Bolivar, Coahoma, Desoto, Humphreys, Leflore, Panola, Quitman, Sharkey, Sunflower, Tallahatchie, Tunica, and Washington. Mississippi is requesting the same use pattern that was authorized in 2021 in Arkansas. **For further details about the emergency and risk evaluations, the 2021 Decision Memorandum is attached**.

According to the MDAC, rice stink bug is a major pest of rice that starts infesting rice fields as rice begins to head. Yield losses can occur if feeding happens during the flowering and milk growth stages. Feeding will lead to quality losses or "pecky" rice. If not controlled, heavy infestations of stink bug can cause damage exceeding 10% yield loss. MDAC claims that this year's observations have shown large populations of rice stink bugs in most fields, with multiple fields needing to be treated two to three times. MDAC claims that pyrethroids are not providing sufficient control and alternative insecticides (dinotefuran and malathion) are in extremely short supply.

Further contributing to the situation, MDAC states that many growers are already expected to incur yield losses from late planting due to adverse weather conditions during the month of April when planting usually occurs. Moreover, starting in early April 2022, observations were reported of extremely high number of rice stink bug in wheat, which provides a good indication of what growers could anticipate in their rice fields.

## AGENCY EVALUATION

**BIOLOGICAL AND ECONOMIC ANALYSIS:** OPP's Biological and Economic Analysis Division reviewed the 2022 specific exemption request from Mississippi to use thiamethoxam co-formulated with lambda-cyhalothrin to control rice stink bug in rice fields and agrees that there are two effective-registered alternative active ingredients (dinotefuran and malathion), other than pyrethroids, that would target rice stink bug. However, dinotefuran and malathion are in limited

supply or not available, and biological control and cultural practices were not viable or are likely already employed by growers to some extent. In addition, an economic analysis determined that rice growers may realize losses to gross revenues of approximately 20%; if growers experience yield loss due to rice stink bug damage in addition to losses due to peck then losses would exceed 20%.

In conclusion, BEAD determined that the MDAC's Section 18 application meets the criteria of urgent and non-routine, with an impending economic loss of 20% or greater. BEAD recommends that this application not be recertifiable. This decision was based, in part, on the lack of available registered efficacious alternative due to market shortages in 2022 that should be back on the market and available to rice growers in 2023.

**HUMAN HEALTH RISK ASSESSMENT:** OPP's Health Effects Division (HED) conducted a review in connection with the 2021 request from Arkansas of the requested Section 18 use pattern for the active ingredient thiamethoxam and did not cover lambda-cyhalothrin because lambda-cyhalothrin is registered with permanent tolerances on rice. HED concluded that there are no human health risk issues that would preclude allowing the proposed Section 18 use of thiamethoxam in rice. Previously established time-limited tolerances in rice commodities for thiamethoxam (and its metabolite, clothianidin) will support residues resulting from this use.

**ENVIRONMENTAL FATE AND EFFECTS ASSESSMENT:** OPP's Environmental Fate and Effects Division (EFED) evaluated the Section 18 request and relied on the results from the 2017 assessments "Preliminary Bee Risk Assessment to Support the Registration Review of Clothianidin and Thiamethoxam" and "Preliminary Risk Assessment to Support the Registration Review of Thiamethoxam Registration Review" plus the 2018 Section 18 assessment "Thiamethoxam: 2019 Section 18 Quarantine Exemption Use of Endigo® ZC Insecticide (EPA Reg. No. 100-1276 co-formulated with lambda-cyhalothrin) in Rice to Control Rice Delphacid in Texas" to evaluate potential risks to non-target species. Additionally, aquatic modeling was done for the assessment using Pesticides in Flooded Applications Model (PFAM) to estimate thiamethoxam concentrations in rice paddy water in Arkansas (also applies to Mississippi).

EFED concluded that risks from the proposed Section 18 use of thiamethoxam on rice are not expected to present additional risks to non-target taxa than the currently registered use patterns. Foliar application of thiamethoxam on rice poses a mortality risk to freshwater aquatic invertebrates located in the paddy or in release waters. Exposure estimates for aquatic taxa are higher based on use in the rice paddy than other registered agricultural uses. Risks to fish, saltwater invertebrates, aquatic plants, terrestrial invertebrates and terrestrial plants are considered low. Although contact and dietary risk quotients (RQs) for adult bees would exceed the LOC, on-field risks are considered to be minimal, as rice is not a bee attractive crop. Off-field risks to bees are uncertain based on the potential for spray drift to reach foraging bees or bee attractive plants.

**Progress Toward Registration:** The registrant continues to support this emergency exemption use, and a registration submission is currently under review at EPA. The PRIA date has been extended since the initial submission, to allow for full evaluation of thiamethoxam in connection with Registration Review. Therefore, progress towards registration is adequate.

**Recommendation:** The emergency need exists for the requested use and there do not appear to be any outstanding risk data that might undermine the previous safety findings. If future emergency exemptions are sought for this use, these requests are not eligible for recertification of the emergency, and applicants must provide a status update on the availability of the alternative control products. Therefore, I recommend that the attached action be approved.